

Irish Standard I.S. EN 14492-1:2006+A1:2009

Cranes - Power driven winches and hoists - Part 1: Power driven winches

© NSAI 2009

No copying without NSAI permission except as permitted by copyright law.

I.S. EN 14492-1:2006+A1:2009

Incorporating amendments/corrigenda/National Annexes issued since publication:

EN 14492-1:2006/A1:2009

EN 14492-1:2006 +A1:2009/AC:2010

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces: EN 14492-1:2006

This document is based on: EN 14492-1:2006+A1:2009

EN 14492-1:2006

Published:

21 October, 2009 27 September, 2006

This document was published under the authority of the NSAI and comes into effect on: 10 November, 2009

ICS number: 53.020.20 53.020.99

NSAI

1 Swift Square, Northwood, Santry Dublin 9 T +353 1 807 3800 T + F +353 1 807 3838 F +

E standards@nsai.ie

W NSALie

Sales:

T +353 1 857 6730 F +353 1 857 6729 W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

EN 14492-1:2006+A1:2009/AC

> March 2010 Mars 2010 März 2010

ICS 53.020.20; 53.020.99

English version Version Française Deutsche Fassung

Cranes - Power driven winches and hoists - Part 1: Power driven winches

Appareils de levage à charge suspendue -Treuils et palans motorisés - Partie 1: Treuils motorisés Krane - Kraftgetriebene Winden und Hubwerke - Teil 1: Kraftgetriebene Winden

This corrigendum becomes effective on 24 March 2010 for incorporation in the official English and French versions of the EN.

Ce corrigendum prendra effet le 24 mars 2010 pour incorporation dans les versions officielles anglaise et française de la EN.

Die Berichtigung tritt am 24.März 2010 zur Einarbeitung in die offizielle Englische und Französische Fassung der EN in Kraft.



EUROPEAN COMMITTEE FOR STANDARDIZATION COMITÉ EUROPÉEN DE NORMALISATION EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

EN 14492-1:2006+A1:2009/AC:2010 (E)

1 Modification to Clause 1, Scope

Delete the last sentence:

"This document applies to winches manufactured after approval by CEN with a transitional period of 2 years.".

2 Modification to 5.12.9.1, General

Delete ", for electronic systems at least category 2 of A) EN ISO 13849-1 (4)".

to read as follows:

"Electrical motion limiters shall be realized electromechanically, with a positive-opening function (definition as in 3.46 of EN 60204-32:1998), or they shall possess a comparable safety.".

EUROPEAN STANDARD NORME EUROPÉENNE

EN 14492-1:2006+A1

EUROPÄISCHE NORM

October 2009

ICS 53.020.20; 53.020.99

Supersedes EN 14492-1:2006

English Version

Cranes - Power driven winches and hoists - Part 1: Power driven winches

Appareils de levage à charge suspendue - Treuils et palans motorisés - Partie 1: Treuils motorisés

Krane - Kraftgetriebene Winden und Hubwerke - Teil 1: Kraftgetriebene Winden

This European Standard was approved by CEN on 19 August 2006 and includes Amendment 1 approved by CEN on 6 August 2009.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION COMITÉ EUROPÉEN DE NORMALISATION EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

EN 14492-1:2006+A1:2009 (E)

Cont	Contents Pa		
Forew	ord	5	
Introd	uction	6	
1	Scope		
2	Normative references		
3	Terms and definitions		
3 4	List of significant hazards		
 5	Safety requirements and/or protective measures		
อ 5.1	GeneralGeneral	19	
5.2	Devices		
5.3	Couplings		
5.4 5.5	Brakes for lifting and lowering movements		
5.6	Load hooks		
5.7	Rope drive		
5.8	Chain drives		
5.9	Belt drives		
5.10	Pneumatic equipment		
5.11	Hydraulic equipment		
5.12	Electrical equipment of winches		
5.13	Reduction of noise by design		
5.14 5.15	Winches for use in a potentially explosive atmosphereAdditional requirements for vehicle recovery winches and winches on boat trailers		
5.15 5.16	Additional requirements for forestry winches		
5.10 5.17	Additional and deviating requirements for winches for pulling purposes		
6 6.1	Verification of the safety requirements and/or protective measures		
6.2	Winches designed individually		
	•		
7	User information		
7.1 7.2	General		
7.2 7.3	Special requirements		
_	•		
	A (informative) Examples of winches		
A.1	Drum winches		
A.2	Traction winches		
A.3 A.4	Vehicle recovery winches		
A.4 A.5	Forestry winches		
	B (informative) Additional requirements for winches intended to be used in potentially		
Aillex	explosive atmospheres	65	
B.1	Introduction		
B.2	General		
B.3	Hazard sources in explosion hazard areas	66	
B.3.1	Electrically caused hazards		
B.3.2	Mechanically caused hazards	66	
B.3.3	Hazards caused by environmental conditions	66	
B.3.4	Measures to eliminate hazards in explosion hazard areas		
B.3.5	Marking		
B.4	User information	67	
Annex	C (informative) Additional requirements for operation in aggressive environments and		

EN 14492-1:2006+A1:2009 (E)

C.1 C.2	GeneralRopes and chains	
	D (informative) Additional requirements for operation at low temperatures	
	E (informative) Documents for hooks	
	F (normative) Noise test code	
F.1 F.2	Scope	72
F.2 F.3	Standards used in this annex Description of the machine family	
F.4	Determination of the emission sound pressure level at the operator's position by	
F.4.1	measurement	
F.4.2	Winches other than construction winches	
F.5	Determination of the sound power level	
F.5.1 F.5.2	GeneralWinches other than construction winches	
F.5.3	Construction winches	74
F.6 F.6.1	Mounting and operating conditions	
F.6.2	Winches other than construction winches	
F.6.3	Construction winches	76
F.7 F.8	UncertaintiesInformation to be recorded	
F.9	Information to be reported	76
F.10	Declaration and verification of noise emission values	77
Annex	G (informative) Selection of a suitable set of cranes standards for a given application	78
Annex	ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 98/37/EC	79
Annex	ZB (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 94/9/EC	80
Annex	ZC (informative) A Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC	81
Bibliog	graphy	82
Figure	s	
Figure	1 — Fleet angle	11
Figure	2 — Undercut groove base profile	31
Figure	A.1.1 — Drum winch, manufactured in series	60
Figure	1.2 — Drum winch, manufactured individually	60
Figure	A.1.3 — Drum winch, pneumatically driven	60
Figure	A.2.1 — Traction winch, standard type	61
	A.2.2 — Traction winch with 2 load bearing ropes and storage drum	
	A.2.3 — Traction winch with storage drum	
	A.3.1 — Vehicle recovery winch with electrical drive	

EN 14492-1:2006+A1:2009 (E)

Figure A.4 — Winch for boat trailers with electrical drive	63
Figure A.5. — Forestry winch with rope drum and hydraulic drive	64
Figure F.1 — Microphone positions on the hemisphere	75
Tables Tables	
Γable 1 — List of significant hazards and associated requirements	15
Fable 1 (continued)	16
Γable 2 — Values for $v_{\rm h}$ for estimation of $φ_{\rm IAL}$	25
Γable 3 — Limit revolutions for three-phase slipring motors	40
Γable 4 — Stall torques for three-phase slipring motors with contactor control	40
Table 5 — Methods to be used to verify conformity with the safety requirements and/or measures	48
Fable 5 (continued)	49
Fable F.1 — Coordinates of the 6 microphone positions	74

EN 14492-1:2006+A1:2009 (E)

Foreword

This document (EN 14492-1:2006+A1:2009) has been prepared by Technical Committee CEN/TC 147 "Cranes — Safety", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2010, and conflicting national standards shall be withdrawn at the latest by April 2010.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document includes Amendment 1, approved by CEN on 2009-08-06.

This document supersedes EN 14492-1:2006.

The start and finish of text introduced or altered by amendment is indicated in the text by tags [A].

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annexes ZA, ZB and ZC which are integral parts of this document. (A)

For the relationship with other European Standards for cranes, see informative Annex G.

This is the first part of the standard "Cranes — Power driven winches and hoists". The parts of the standard are:

- Part 1: Power driven winches
- Part 2: Power driven hoists

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

EN 14492-1:2006+A1:2009 (E)

Introduction

This European standard is a harmonized standard to provide one means for power driven winches to conform to the essential health and safety requirements of the Machinery Directive 98/37/EC and the Machinery Directive 2006/42/EC.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this European Standard.

This European Standard is a type C standard as stated in EN 12100-1.

When provisions of this type C standard are different from those stated in type A or B standards, the provisions of this type C standard take precedence over the provision of the other standards, for machines that have been designed and built in accordance with the provisions of this type C standard.

EN 14492-1:2006+A1:2009 (E)

1 Scope

This European Standard is applicable to the design, information for use, maintenance and testing of power driven winches for which the prime mover is an electric motor, hydraulic motor, internal combustion motor or pneumatic motor. They are designed for the lifting and lowering of loads which are suspended on hooks or other load handling devices or for the lifting and lowering of loads on inclined planes or the exclusive pulling of loads on planes which are normally horizontal.

NOTE Within the period of utilization, the place of use of a winch may be variable.

As a rule, a winch is used without any additional transport movement.

This European Standard is applicable to the following types of winch:

- a) rope winches;
- b) chain winches;
- c) belt winches, except steel belts used as hoisting media;
- d) traction winches.

These types of winches a) to d) also include the following specific applications:

- vehicle recovery winches;
- winches on boat trailers;
- forestry winches;
- winches for stationary offshore applications;
- winches for drilling applications;
- winches to be used exclusively for the pulling of loads.

NOTE Examples are shown in Annex A.

EN 14492-1:2006+A1:2009 (E)

This European Standard does not apply to:

- power-driven hoists in accordance with EN 14492-2;
- winches for seagoing vessels and mobile offshore units;
- winches for the lifting of persons;
- NGL building hoists in accordance with EN 14492-2;
- winches for the handling of hot molten masses (risk covered by EN 14492-2).

The significant hazards covered by this European Standard are identified in Clause 4.

This European Standard does not specify additional requirements for hazards related to the use of winches in explosive atmospheres in underground works.

This document applies to winches manufactured after approval by CEN with a transitional period of 2 years.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 418:1992, Safety of machinery — Emergency stop equipment, functional aspects — Principles for design

EN 563:1994, Safety of machinery — Temperatures of touchable surfaces — Ergonomics data to establish temperature limit values for hot surfaces

EN 818-1:1996, Short link chain for lifting purposes — Safety — Part 1: General conditions of acceptance

EN 818-7:2002, Short link chain for lifting purposes — Safety — Part 7: Fine tolerance hoist chain, Grade T (Types T, DAT and DT)

A1) deleted text (A1)

EN 982:1996, Safety of machinery — Safety requirements for fluid power systems and their components — Hydraulics

EN 983:1996, Safety of machinery — Safety requirements for fluid power systems and their components — Pneumatics

EN 1127-1:1997, Explosive atmospheres — Explosion prevention and protection — Part 1: Basic concepts and methodology

EN 12077-2:1998, Cranes — Safety — Requirements for health and safety — Part 2: Limiting and indicating devices

EN 12644-2:2000, Cranes — Information for use and testing — Part 2: Marking

EN 13001-2:2004, Cranes — General design — Part 2: Load actions

EN 13411-3:2004, Terminations for steel wire ropes — Safety — Part 3: Ferrules and ferrule-securing

EN 13411-4:2002, Terminations for steel wire ropes — Safety — Part 4: Metal and resin socketing

EN 13411-6:2004, Terminations for steel wire ropes — Safety — Part 6: Asymmetric wedge socket

EN 13411-7:2003, Terminations for steel wire ropes — Safety — Part 7: Symmetric wedge socket



Product Page

- Dooking for additional Standards? Visit Intertek Inform Infostore
- Dearn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation